Wireless I/O (2400 MHz / 900 MHz)

	Radioline 2400 MHz	Radioline 900 MHz	Radioline I/O extension modules		
Type	**RAD-2400-IFS**	**RAD-900-IFS**	**RAD-DAIO6-IFS**	**RAD-DI4-IFS/RAD-DOR4-IFS RAD-DI8-IFS/RAD-DO8-IFS**	**RAD-AI4-IFS/RAD-AO4-IFS RAD-PT100-4-IFS**
Description	**Wireless transceiver,** for serial interfaces (RS-232, RS-485), can be extended with I/O extension modules	**Wireless transceiver,** for serial interfaces (RS-232, RS-485), can be extended with I/O extension modules	**Analog/digital I/O module,** 2 digital inputs/outputs and 1 analog input/output	**Digital I/O modules,** 4 inputs or 4 relay outputs 8 inputs or 8 transistor outputs	**Analog I/O modules,** 4 inputs or 4 outputs **Temperature I/O module** 4 Pt 100 inputs
Page	451	451	452	452	454

Wireless IO (2400 MHz)

WirelessHART

	Wireless MUX	Fieldline I/O			
Type	**ILB BT ADIO MUX-OMNI...**	**FLM BT...**	**ILB BT ADIO 2/2/16/16**	**RAD-WHG/WLAN-XD**	**RAD-WHA-1/2NPT**
Description	**Bluetooth multiplexer,** with omnidirectional antennae	**Fieldline Modular Bluetooth base station,** with up to three Wireless I/O devices	**Inline Block,** Bluetooth device	**WirelessHART gateway**	**WirelessHART adapter**
Page	456	457	457	458	459

Wireless Serial (2400 MHz / 900 MHz / GPRS/GSM)

Accessories

	Radioline	PSI-WL-...Bluetooth	PSI Modem Line	2400 MHz	900 MHz
Type	**RAD-2400-IFS RAD-900-IFS**	**PSI-WL-...**	**PSM-Modem...**		
Description	**Wireless transceiver,** for serial interfaces (RS-232, RS-485), can be extended with I/O extension modules	**Bluetooth converter,** for converting RS-232 (V.24), RS-422 or RS-485 2-wire to Bluetooth wireless transmission, e.g., Modbus, PROFIBUS	**Industrial GPRS/GSM modems,** for all GMS networks (850/900/1800/1900), switching inputs and outputs, password protection	**Antennae, adapters, extension cables** for 2400 MHz products	**Antennae, adapters, extension cables** for 900 MHz products
Page	451	460	422	462	474

Wireless IO (900 MHz)

	RAD-Line IO unidirectional		RAD-Line serial		
Type	**RAD-ISM-900-SET-UD-ANT**	**RAD-ISM-900-SET-...UD**	**RAD-ISM-900-DATA-BD-BUS**	**RAD-ISM-900-DATA-BD**	**RAD-ISM-900-DATA-BD-PLUS**
Description	**Unidirectional wireless system,** with Trusted Wireless, transmitter and receiver in IP20 housing	**Unidirectional wireless system,** with Trusted Wireless, transmitter (IP65) and receiver (IP20)	**Wireless transceiver,** with Trusted Wireless, for serial interfaces (RS-232, RS-422/RS-485), can be extended with IO extension modules	**Wireless transceiver,** with Trusted Wireless, for serial interfaces (RS-232, RS-422/RS-485)	**Wireless transceiver,** with Trusted Wireless, for serial interfaces (RS-232, RS-422/RS-485), with integrated inputs/outputs
Page	**466**	**467**	**469**	**468**	**469**

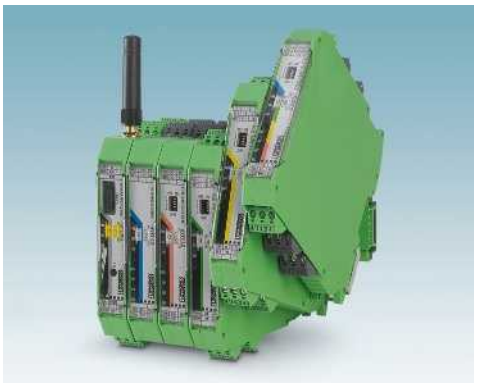
Wireless IO (900 MHz)

	RAD-Line IO extension modules				
Type	**RAD-IN-4A-I RAD-OUT-4A-I**	**RAD-IN-8D RAD-OUT-8D-REL**	**RAD-IN+OUT-2D-1A-I**	**RAD-IN-2D-CNT RAD-OUT-2D-CNT**	
Description	**Analog module,** for four inputs or four outputs	**Digital module,** for eight inputs or eight outputs	**Analog/digital module,** for two digital inputs/outputs and one analog input/output	**Digital module,** for two counter/frequency inputs or two counter/frequency outputs	
Page	**472**	**472**	**472**	**472**	

Wireless Ethernet (900 MHz/2400 MHz)

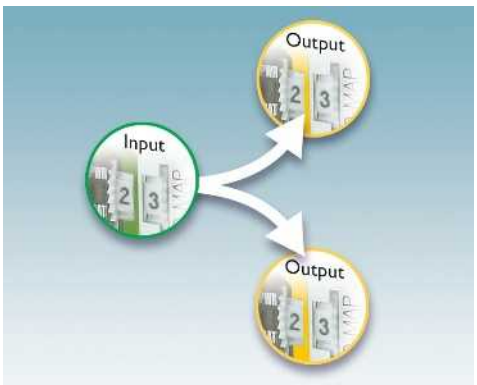
	RAD-Line Ethernet		WLAN COM server	Industrial WLAN	Industrial Bluetooth
Type	**RAD-ISM-900-EN-BD(-BUS)**	**RAD-80211-XD-HP(-BUS)**	**FL COMSERVER WLAN 232/422/485**		
Description	**Wireless transceiver,** with Trusted Wireless, for Ethernet (900 MHz), can be extended with IO extension modules	**Wireless transceiver,** with WLAN 802.11b/g, for Ethernet (2400 MHz), can be extended with IO extension modules	**Serial device server,** for serial interfaces (RS-232, RS-422/RS-485) on Wireless LAN	For further information on Industrial WLAN, see **Section: Ethernet networks**	For further information on Industrial Bluetooth, see **Section: Ethernet networks**
Page	**470**	**471**	**413**	**48**	**52**

Easy startup with I/O mapping - the Radioline wireless system



Easy installation - Setting up, extending or replacing a wireless station in the control cabinet

Easy addressing -
Only one turn on the thumbwheel of the wireless station



Easy distribution -
Assigning inputs and outputs using the thumbwheel

Radioline is the new wireless system for large systems and networks. Special features include extremely easy assignment of inputs and outputs by simply turning the thumbwheel - without any programming.

Radioline transmits I/O signals as well as serial data and is therefore very versatile. In addition, you can implement various network structures: from a simple point-to-point connection to complex mesh networks.

Thanks to the latest Trusted Wireless technology, Radioline is the ideal choice for industrial use.

Network applications

– I/O data mode: simple I/O signal distribution in the network
– PLC/Modbus RTU mode: I/O integration in the control level using the Modbus protocol
– Serial data mode: networking of controllers and serial I/O devices, simple RS-232/RS-485 cable replacement

What advantages does I/O mapping offer?

I/O mapping makes it considerably easier to assign input and output signals in your systems. With a slight turn of the thumbwheel, you can distribute and multiply I/O signals freely in your network – without the need for any complex programming.

Trusted Wireless

Trusted Wireless technology is specifically designed for the reliable transmission of data and signals over long distances.

The new Version 2.0 also offers functions such as adjustable data rates, encryption, extended diagnostics, and parallel operation of multiple networks.

N

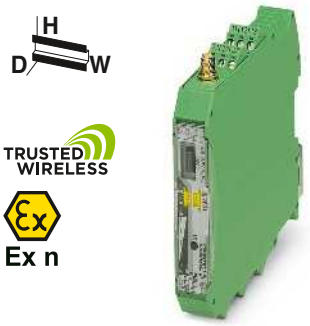
Radioline wireless modules 2.4 GHz and 900 MHz

- New Trusted Wireless 2.0 technology
- Distribute signals at the turn of a switch (I/O mapping)
- Unique network addressing via plug-in configuration memory for secure, parallel operation of multiple networks

Notes:

The latest country registrations for the relevant product can be found on the Internet at www.phoenixcontact.com.

1) EMC: Class A product, see page 553



2.4 GHz wireless transceiver, can be extended with I/O extension modules, for worldwide use

Ex:

Housing width 17.5 mm

900 MHz wireless transceiver, can be extended with I/O extension modules, for the US market

Housing width 35 mm

Technical data

Wireless path				
Direction	Bi-directional		Bi-directional	
Frequency range	2.4002 GHz ... 2.4785 GHz		902 MHz ... 928 MHz	
Data rate (adjustable)	16 kbps / 125 kbps / 250 kbps		16 kbps / 125 kbps / 250 kbps / 500 kbps	
Transmission power	max. 100 mW (adjustable)		max. 1 W (adjustable)	
Number of channels	8 x 55		-	
Security	128-bit data encryption		128-bit data encryption	
Connection method	RSMA (female)		RSMA (female)	
Serial port	RS-232	RS-485	RS-232	RS-485
Connection method	COMBICON plug-in screw terminal block	COMBICON plug-in screw terminal block	COMBICON plug-in screw terminal block	COMBICON plug-in screw terminal block
Serial transmission speed	0,3 ... 115,2 kbps	0,3...115,2 kbps	0.3 ... 115.2 kbps	0.3...115.2 kbps
Termination resistor (switchable via DIP switches)	-	390 Ω / 150 Ω / 390 Ω	-	390 Ω / 150 Ω / 390 Ω
Analog output	RSSI voltage output		RSSI voltage output	
Signal range	0 V ... 3 V		0 V ... 3 V	
Digital output	RF link relay output		RF link relay output	
Contact type	PDT		PDT	
Switching voltage	30 V AC / 60 V DC		30 V AC / 60 V DC	
Switching current	500 mA		500 mA	
General data				
Supply voltage	19.2 V DC ... 30.5 V DC		19.2 V DC ... 30.5 V DC	
Current consumption	max. 65 mA (at 24 V DC, at 25°C)			
Degree of protection	IP20		IP20	
Ambient temperature range	-40 °C ... 70 °C		-40 °C ... 70 °C	
Permissible humidity (operation)	20% ... 85%		20% ... 85%	
Housing material	PA 6.6-FR		PA 6.6-FR	
Dimensions W / H / D	17.5 / 99 / 114.5 mm		35 / 99 / 114.5 mm	
Screw connection solid/stranded/AWG	0.2 ... 2.5 mm² / 0.2 ... 2.5 mm² / 24 - 14		0.2 ... 2.5 mm² / 0.2 ... 2.5 mm² / 24 - 14	
Conformance / approvals				
Conformance	CE compliance (R&TTE directive 1999/5/EC) FCC Directive, Part 15.247 ISC Directive RSS 210		FCC Directive, Part 15.247 ISC Directive RSS 210	
ATEX	II 3 G Ex nA nC IIC T4 Gc X		-	
IECEx	Applied for		-	
UL, USA / Canada	UL applied for		-	

Ordering data

Description	Type	Order No.	Pcs. / Pkt.
Wireless module			
	RAD-2400-IFS[1]	**2901541**	1

Accessories

Conf. stick, configuration memory for network addressing			
RF band 3	**RAD-CONF-RF3**	**2902814**	1
RF band 5	**RAD-CONF-RF5**	**2902815**	1
RF band 7	**RAD-CONF-RF7**	**2902816**	1
Memory stick, for saving custom configuration data	**RAD-MEMORY**	**2902828**	1
USB cable, for diagnostics and extended configuration	**RAD-CABLE-USB**	**2903447**	1

Ordering data

Type	Order No.	Pcs. / Pkt.
RAD-900-IFS	**2901540**	1

Accessories

RAD-MEMORY	**2902828**	1
RAD-CABLE-USB	**2903447**	1

I/O extension modules

- Easy I/O mapping via thumbwheel
- Digital wide-range inputs (0...250 V AC/DC)
- 0 ... 100 Hz digital pulse inputs
- Relay or transistor outputs
- Easy module replacement even during operation (hot swap)
- Extended temperature range −40°C to +70°C

Notes:

1) EMC: Class A product, see page 553

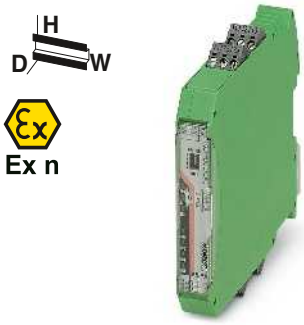
I/O extension module, 2 digital inputs/outputs and 1 analog input/output

I/O extension module, 4 digital inputs

		Ex: Housing width 17.5 mm	Ex: Housing width 17.5 mm
		Technical data	**Technical data**
Analog input			
Number of inputs		1	-
Resolution		16 (Bit)	-
Signal range (configurable using the DIP switch)		0 mA ... 20 mA / 4 mA ... 20 mA	-
Accuracy		≤ 0.02% (@25°C)	-
Supply voltage	for passive sensors (via terminal PWR1, +I1)	≥ 12 V DC	-
Digital input			
Number of inputs		2	4
Switching level	1 signal ("H")	10 V AC/DC ... 50 V AC/DC (low-voltage input) 50 V AC/DC ... 250 V AC/DC (high-voltage input)	10 V AC/DC ... 50 V AC/DC (low-voltage input) 50 V AC/DC ... 250 V AC/DC (high-voltage input)
Switching level	0 signal ("L")	0 V AC/DC ... 4 V AC/DC (low-voltage input) 0 V AC/DC ... 20 V AC/DC (high-voltage input)	0 V AC/DC ... 4 V AC/DC (low-voltage input) 0 V AC/DC ... 20 V AC/DC (high-voltage input)
Input frequency		≤ 2 Hz	≤ 2 Hz
Pulse input			
Number of inputs		-	-
Signal range		-	-
Input frequency		-	-
Pulse length		-	-
Analog output			
Number of outputs		1	-
Signal range		0 mA ... 20 mA 4 mA ... 20 mA 0 V ... 10 V	-
Accuracy		≤ 0.02% (@25°C) Typ. 0.5%	-
Load R_B		≤ 500 Ω ≥ 10 kΩ	-
Digital output			
Contact type		2 x relay output	-
Switching voltage		250 V AC 24 V DC	-
Switching current	min./max.	≥ 10 mA / 2 A	-
Switching frequency		2 Hz	-
General data			
Supply voltage		19.2 V DC ... 30.5 V DC (T-connector)	19.2 V DC ... 30.5 V DC (T-connector)
Current consumption		max. 95 mA (at 24 V DC, at 25°C)	max. 11 mA (at 24 V DC, at 25°C)
Degree of protection		IP20	IP20
Ambient temperature range		-40 °C ... 70 °C	-40 °C ... 70 °C
Housing material		PA 6.6-FR	PA 6.6-FR
Dimensions W / H / D		17.5 / 99 / 114.5 mm	17.5 / 99 / 114.5 mm
Conformance / approvals			
Conformance		CE-compliant	CE-compliant
ATEX		Ⓔx II 3 G Ex nA nC IIC T4 Gc X	Ⓔx II 3 G Ex nA IIC T4 Gc X
IECEx		Applied for	Applied for
UL, USA / Canada		UL applied for	UL applied for

Description	Type	Order No.	Pcs. / Pkt.
Ordering data			
Analog/digital I/O module Digital input module Digital relay output module Digital/pulse input module Digital transistor output module	**RAD-DAIO6-IFS[1])**	**2901533**	1
Accessories			
Analog/digital I/O module Digital relay output module Digital input module Digital transistor output module Digital/pulse input module	**RAD-DAIO6-IFS[1])**	**2901533**	1

Description	Type	Order No.	Pcs. / Pkt.
Ordering data			
Digital input module	**RAD-DI4-IFS[1])**	**2901535**	1
Accessories			
Digital relay output module	**RAD-DOR4-IFS[1])**	**2901536**	1

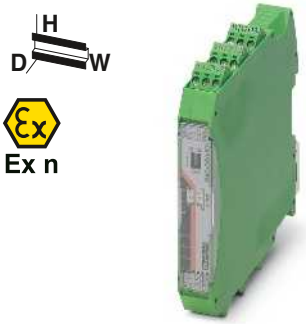


**I/O extension module,
4 digital relay outputs**

N

**I/O extension module,
8 digital inputs and 2 pulse inputs**

N



**I/O extension module,
8 digital transistor outputs**

Ex:

Housing width 17.5 mm

Technical data

-	
-	
-	
-	
-	
-	
-	2
-	10 V DC ... 30.5 V DC
-	0 V DC ... 4 V DC
-	≤ 10 Hz (static mode)
-	2
-	0 V DC ... 30.5 V DC
-	< 100 Hz (pulse counter mode)
-	min. 5 ms
-	
-	
-	
-	
4 x relay output	
250 V AC 24 V DC	
≥ 10 mA / 6 A (per channel)	
2 Hz	
19.2 V DC ... 30.5 V DC (T-connector)	19.2 V DC ... 30.5 V DC (T-connector)
max. 55 mA (at 24 V DC, at 25°C)	max. 18 mA (at 24 V DC, at 25°C)
IP20	IP20
-40 °C ... 70 °C	-40 °C ... 70 °C
PA 6.6-FR	PA 6.6-FR
17.5 / 99 / 114.5 mm	17.5 / 99 / 114.5 mm
CE-compliant	CE-compliant
Ex II 3 G Ex nA nC IIC T4 Gc X	Ex II 3 G Ex nA IIC T4 Gc X
Applied for	Applied for
UL applied for	UL applied for

Ordering data

Type	Order No.	Pcs. / Pkt.
RAD-DOR4-IFS[1])	**2901536**	1

Accessories

RAD-DI4-IFS[1])	**2901535**	1

Housing width 17.5 mm

Technical data

-	
-	
-	
-	
-	
-	2
-	10 V DC ... 30.5 V DC
-	0 V DC ... 4 V DC
-	≤ 10 Hz (static mode)
-	2
-	0 V DC ... 30.5 V DC
-	< 100 Hz (pulse counter mode)
-	min. 5 ms
-	
-	
-	
-	
-	
-	
-	30.5 V DC
-	- / 250 mA (per channel)
-	10 Hz
19.2 V DC ... 30.5 V DC (T-connector)	19.2 V DC ... 30.5 V DC (T-connector)
max. 18 mA (at 24 V DC, at 25°C)	max. 22 mA (at 24 V DC, at 25°C)
IP20	IP20
-40 °C ... 70 °C	-40 °C ... 70 °C
PA 6.6-FR	PA 6.6-FR
17.5 / 99 / 114.5 mm	17.5 / 99 / 114.5 mm
CE-compliant	CE-compliant
Ex II 3 G Ex nA IIC T4 Gc X	Ex II 3 G Ex nA IIC T4 Gc X
Applied for	Applied for
UL applied for	UL applied for

Ordering data

Type	Order No.	Pcs. / Pkt.
RAD-DI8-IFS	**2901539**	1

Accessories

RAD-DO8-IFS	**2902811**	1

Housing width 17.5 mm

Technical data

-	
-	
-	
-	
-	
-	
-	
-	
-	
-	
-	
-	
-	
-	
-	
-	
-	
8 x transistor output, active	
30.5 V DC	
- / 250 mA (per channel)	
10 Hz	
19.2 V DC ... 30.5 V DC (T-connector)	
max. 22 mA (at 24 V DC, at 25°C)	
IP20	
-40 °C ... 70 °C	
PA 6.6-FR	
17.5 / 99 / 114.5 mm	
CE-compliant	
Ex II 3 G Ex nA IIC T4 Gc X	
Applied for	
UL applied for	

Ordering data

Type	Order No.	Pcs. / Pkt.
RAD-DO8-IFS	**2902811**	1

Accessories

RAD-DI8-IFS	**2901539**	1

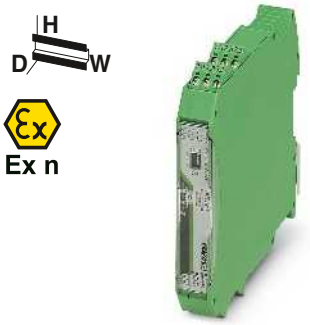
I/O extension modules

N

- Easy I/O mapping via thumbwheel
- Analog inputs (0/4 ... 20 mA)
- Temperature inputs for Pt 100 sensors
- Analog outputs (0/4 ... 20 mA or 0 ... 10 V)
- Easy module replacement even during operation (hot swap)
- Extended temperature range −40°C to +70°C

Notes:

1) EMC: Class A product, see page 553



I/O extension module, 4 analog current inputs

Temperature I/O extension module, 4 temperature inputs

	Ex: Housing width 17.5 mm	Housing width 17.5 mm
	Technical data	**Technical data**
Analog input		
Number of inputs	4	-
Resolution	16 (Bit)	-
Signal range (configurable using the DIP switch)	0 mA ... 20 mA / 4 mA ... 20 mA	-
Accuracy	≤ 0.02% (@25°C)	-
Supply voltage for passive sensors (via terminal PWR1, +I1)	≥ 12 V DC	-
Analog input		
Description of the input	-	Pt 100 input
Number of inputs	-	4
Temperature measuring range	-	-50 °C ... 250 °C
Analog output		
Number of outputs	-	-
Signal range	-	-
Accuracy	-	-
Load R_B	-	-
General data		
Supply voltage	19.2 V DC ... 30.5 V DC (T-connector)	19.2 V DC ... 30.5 V DC (T-connector)
Current consumption	max. 120 mA (at 24 V DC, at 25°C)	max. 45 mA (at 24 V DC, at 25°C)
Degree of protection	IP20	IP20
Ambient temperature range	-40 °C ... 70 °C	-40 °C ... 70 °C
Housing material	PA 6.6-FR	PA 6.6-FR
Dimensions W / H / D	17.5 / 99 / 114.5 mm	17.5 / 99 / 114.5 mm
Conformance / approvals		
Conformance	CE-compliant	CE-compliant
ATEX	Ex II 3 G Ex nA IIC T4 Gc X	Ex II 3 G Ex nA IIC T4 Gc X
IECEx	Applied for	Applied for
UL, USA / Canada	UL applied for	UL applied for

Ordering data

Description	Type	Order No.	Pcs. / Pkt.
Analog input module Temperature input module Analog output module	**RAD-AI4-IFS[1])**	**2901537**	1

Ordering data

Type	Order No.	Pcs. / Pkt.
RAD-PT100-4-IFS	**2904035**	1

Accessories

Analog output module Analog input module Temperature input module	**RAD-AO4-IFS[1])**	**2901538**	1

Accessories

RAD-AO4-IFS[1])	**2901538**	1

**I/O extension module,
4 analog current/voltage outputs**

Ex:
Housing width 17.5 mm

Technical data

-	
-	
-	
-	
-	
-	
-	
-	
4	
0 mA ... 20 mA	0 V ... 10 V
4 mA ... 20 mA	
≤ 0.02% (@25°C)	Typ. 0.5%
≤ 500 Ω	≥ 10 kΩ
19.2 V DC ... 30.5 V DC (T-connector)	
max. 115 mA (at 24 V DC, at 25°C)	
IP20	
-40 °C ... 70 °C	
PA 6.6-FR	
17.5 / 99 / 114.5 mm	
CE-compliant	
II 3 G Ex nA IIC T4 Gc X	
Applied for	
UL applied for	

Ordering data

Type	Order No.	Pcs. / Pkt.
RAD-AO4-IFS[1])	**2901538**	1

Accessories

RAD-AI4-IFS[1])	**2901537**	1
RAD-PT100-4-IFS	**2904035**	1

Wireless I/O

Wireless MUX - the wireless signal cable

The Wireless MUX transmits 16 digital and 2 analog signals bidirectionally. The Wireless MUX is supplied ready to use: unpack – connect – switch on – and you have a working wireless path.

– Range*:
With omnidirectional antenna, 50 m to 100 m in halls, up to 200 m outdoors.
With PANEL antennas, up to 400 m outdoors.

Fieldline I/O for wireless fieldbus extension

The Bluetooth I/O system integrates I/O signals into a fieldbus or an Ethernet network via Bluetooth.

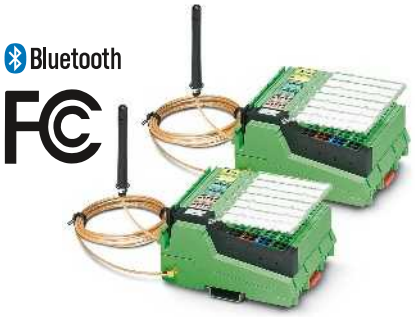
Advantages of Bluetooth technology:

– Extremely rugged and reliable
– Simple and fast commissioning
– WLAN coexistence functions AFH, LEM, black channel listing
– Parallel operation of several Bluetooth systems
– Range*:
20 m to 50 m in industrial halls, up to over 100 m outdoors.

Notes:

* The range may be significantly above or below that stated, and depends on the environment, antenna technology, and the product used.

1) EMC: Class A product, see page 553



Wireless set, including antennae

Technical data

Wireless interface	
Wireless standard	Bluetooth 1.2
Frequency range	2.402 GHz ... 2.48 GHz (ISM bandwidth)
Transmission power	16 dBm (40 mW, controlled automatically)
Wireless modules that can be connected	-
Antenna connection method	MCX (female)
Fieldbus interface	
Name	-
Transmission speed	-
Power supply for module electronics	
Supply voltage	24 V DC
Supply voltage range	19.2 V DC ... 30 V DC (including ripple)
Digital inputs	
Connection technology	1-wire
Number of inputs	16
Digital outputs	
Connection technology	1-wire
Number of outputs	16
Analog inputs	
Number of inputs	2
Voltage input signal	0 V ... 10 V
Current input signal	0 mA ... 20 mA
Measured value resolution	12 bits
Analog outputs	
Number of outputs	2
Voltage output signal	0 V ... 10 V
Current output signal	0 mA ... 20 mA
DAC resolution	12 bit
General data	
Width	95 mm
Degree of protection	IP20
Ambient temperature (operation)	-25 °C ... 60 °C

Ordering data

Description	Type	Order No.	Pcs. / Pkt.
Wireless MUX set, consisting of two modules including antennas, each with 16 digital and 2 analog inputs and outputs			
- With OMNI antennas, 16 dBm transmission power	**ILB BT ADIO MUX-OMNI**	**2884208**	1
- With OMNI antennas, 8 dBm transmission power, maritime approvals	**ILB BT ADIO MUX-OMNI 8/M[1])**	**2693185**	1
- With PANEL antennas, 12 dBm transmission power, 8 dBi antenna gain	**ILB BT ADIO MUX-PANEL**	**2884509**	1
Fieldline Modular Wireless IO base station for up to three wireless IO devices - Adjustable transmission power			
Fieldline Modular wireless I/O device - Adjustable transmission power - 16 inputs			
Inline Block wireless I/O device - Adjustable transmission power			

Fieldline local bus base station, Incl. OMNI antenna

I/O wireless module, incl. OMNI antenna

I/O wireless module, incl. OMNI antenna

Technical data

Bluetooth 1.2	
2.402 GHz ... 2.48 GHz (ISM bandwidth)	
8 dBm (6.3 mW, controlled automatically)	
Up to 3	
SMA (female)	
Fieldline Modular local bus	
500 kbaud / 2 Mbaud (data rate can be changed via pin 5 (voltage supply ULS)	
24 V DC	
19.2 V DC ... 30 V DC (including ripple)	
-	
-	
-	
-	
-	
-	
-	
-	
-	
-	
70.5 mm	
IP65	
-25 °C ... 60 °C	

Technical data

	FLM BT DIO 8/8 M12[1])	FLM BT DI 16 M12[1])
Bluetooth 1.2		
2.402 GHz ... 2.48 GHz (ISM bandwidth)		
8 dBm (6.3 mW, controlled automatically)		
1 (FLM BT BS 3, FL BT MOD IO AP)		
SMA (female)		
-		
-		
24 V DC		
19.2 V DC ... 30 V DC (including ripple)		19.2 V DC ... 32 V DC
	2, 3-wire	2 or 3-wire (optionally 4-wire)
	8	16
	2, 3-wire	-
	8	-
	-	
	-	
	-	
	-	
	-	
	-	
	-	
	-	
70.5 mm		
IP65		
-25 °C ... 60 °C		

Technical data

Bluetooth 1.2
2.402 GHz ... 2.48 GHz (ISM bandwidth)
16 dBm (can be set between 0 dBm/1 mW and 16 dBm/39.8 mW in 4 dB increments)
1 (FLM BT BS 3, FL BT MOD IO AP)
SMA (female)
-
-
24 V DC
19.2 V DC ... 30 V DC (including ripple)
1-wire
16
1-wire
16
2
0 V ... 10 V
0 mA ... 20 mA
12 bits
2
0 V ... 10 V
0 mA ... 20 mA
12 bit
117 mm
IP20
-25 °C ... 60 °C

Ordering data

Type	Order No.	Pcs. / Pkt.
FLM BT BS 3[1])	**2736770**	1

Ordering data

Type	Order No.	Pcs. / Pkt.
FLM BT DIO 8/8 M12[1])	**2736767**	1
FLM BT DI 16 M12[1])	**2693208**	1

Ordering data

Type	Order No.	Pcs. / Pkt.
ILB BT ADIO 2/2/16/16[1])	**2884282**	1

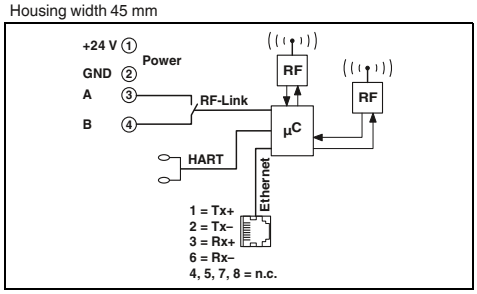
WirelessHART gateway

The **RAD-WHG/WLAN-XD** is a WirelessHART gateway with integrated 802.11b/g WLAN transceiver. It converts HART data to Modbus TCP for easy integration into almost any host system.

– Simple programming and diagnostics using an embedded web server or HART programmer
– WirelessHART gateway supports 250 WirelessHART devices
– 802.11b/g client can be used as WirelessHART backhaul connection with 802.11i (WPA2) 128-bit AES encryption
– Fully meshed routing (self-organizing and self-healing network) with WirelessHART
– WirelessHART uses "channel hopping" as a means of tolerating interference

WirelessHART gateway

Ex:
Housing width 45 mm

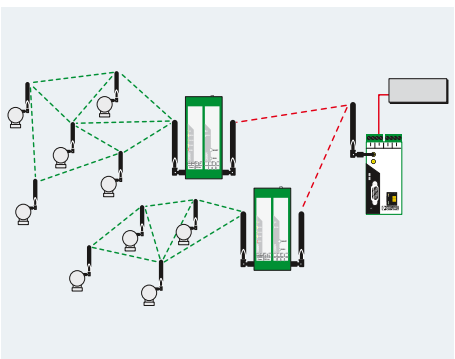


Technical data

Wireless path		
Interface description		WLAN as per IEEE 802.11 b/g
Direction		Bi-directional
Frequency range		2.4 GHz ... 2.472 GHz
Transmission power		0 ... 20 dBm
Number of channels		13
Connection method		Socket
Wireless path		
Interface description		WirelessHART
Frequency range		2.4 GHz ... 2.4835 GHz
Transmission power		0 ... 10 dBm
Number of channels		15
Connection method		Socket
Ethernet interface		
Connection method		RJ45
Transmission speed		10/100 Mbps
General data		
Supply voltage		9 V DC ... 30 V DC
Current consumption	typ. / max.	125 mA (at 24 V DC) / 300 mA (at 24 V DC)
Degree of protection		IP20
Ambient temperature range		-40 °C ... 70 °C
Housing material		Polyamide PA non-reinforced
Dimensions W / H / D		45 / 99 / 114.5 mm
Screw connection solid/stranded/AWG		0.2 ... 4 mm² / 0.2 ... 2.5 mm² / 24 - 14
Conformance / approvals		
Conformance		CE-compliant FCC Directive, Part 15.247
CSA, USA		Class I, Zone 2, Group IIC ; AEx nA IIC T4
CSA, Canada		Class I, Division 2 Groups A,B,C,D Ex nA IIC T4

Ordering data

Description	Type	Order No.	Pcs. / Pkt.
WirelessHART gateway			
	RAD-WHG/WLAN-XD	**2900178**	1



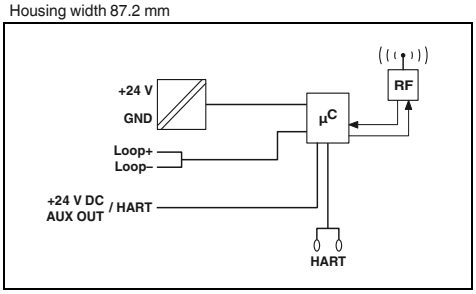
WirelessHART adapter

The **RAD-WHA-1/2NPT** is an adapter that allows up to 4 HART devices to be on a WirelessHART network.

– Allows wired HART devices to transfer data on a WirelessHART network
– Connect up to 4 HART device to one adapter
– Allows connection of one standard 4... 20 mA signal for easy integration of non-HART devices into a WirelessHART network
– 1/2-in. NPT fitting allows remote mounting or direct connection to instrument
– Removable antenna for connection of coaxial cable and high gain antenna

WirelessHART adapter

Housing width 87.2 mm



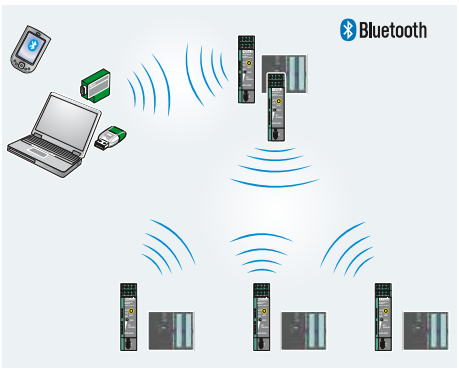
Technical data

Wireless path		
Interface description		WirelessHART
Direction		Bi-directional
Frequency range		2.4 GHz ... 2.4835 GHz
Transmission power		0 ... 10 dBm
Number of channels		15
Connection method		N (female)
Analog input		
Number of inputs		1
Signal range		4 mA ... 20 mA
General data		
Supply voltage		11 V DC ... 30 V DC
Current consumption	max.	95 mA
Degree of protection		IP67
Ambient temperature range		-40 °C ... 70 °C
Housing material		Aluminum, die-cast, corrosion resistant, powder-coated
Dimensions W / H / D		87.2 / 161 / 65.3 mm
Connection method		Flying leads, 20 AWG
Conformance / approvals		
Conformance		-

Ordering data

Description	Type	Order No.	Pcs. / Pkt.
WirelessHART adapter	**RAD-WHA-1/2NPT**	**2900100**	1

Bluetooth interface converter for V.24 (RS-232), RS-422, RS-485 2-wire



Bluetooth converter, universal for V.24 (RS-232), RS-422, RS-485 2-wire

Applications:

The Bluetooth converter is used to convert V.24 (RS-232), RS-422, and RS-485 2-wire or USB interfaces to the licence-free Bluetooth wireless standard. It serves as a straightforward and flexible substitute for a cable in order, for example, to perform programming/diagnostics tasks via a notebook or as a cost-effective alternative to slip rings, drag chains or fieldbus cables, such as Modbus, PROFIBUS, etc.

Topology:

– Point-to-point
– Multipoint with up to seven slaves

Features:

Flexible parameterization/application options:

– Can be used for V.24 (RS-232)/RS-422/RS-485-2 2-wire interfaces up to 187.5 kbps
– Transceiver for distances of up to 150 m

High transmission reliability:

– Secure and tamper-proof data transmission thanks to password protection, encryption, plus fixed and invisible device pairing
– Coexistence with other wireless systems thanks to adaptive frequency hopping (AFH) method

Easy installation:

– Wireless path diagnostics based on integrated bar graphs and 2 digital outputs
– Installation of parallel wireless paths thanks to 24 V DC and RS-485 cross-wiring
– Local configuration via USB interface without separate power supply unit

Technical data

Supply		
Supply voltage		10 V DC ... 30 V DC (via plug-in COMBICON screw terminal block)
Supply voltage		19 V AC ... 29 V AC
Supply voltage		24 V DC ±20% (as an alternative or redundant, via backplane bus contact and system current supply)
Nominal current consumption		≤ 100 mA (24 V DC)
Serial port		
Connection method		D-SUB-9 plug Plug-in screw connection
Transmission speed		0.3 ; 1.2 ; 2.4 ; 4.8 ; 7.2 ; 9.6 ; 19.2 ; 31.25 ; 38.4 ; 57.6 ; 75 ; 93.75 ; 115.2 kbps 0.3 ; 1.2 ; 2.4 ; 4.8 ; 7.2 ; 9.6 ; 19.2 ; 31.25 ; 38.4 ; 57.6 ; 75 ; 93.75 ; 115.2 ; 136 ; 187.5 kbps
Wireless interface		
Antenna connection		External
Transmission power		-28 dBm to 14 dBm (can be set via software)
Receiver sensitivity		-91.00 dBm
Frequencies		2.402 GHz ... 2.48 GHz (ISM bandwidth)
Range depending on spatial conditions		≤ 150 m (14 dBm)
Bluetooth Multidrop master / slave		1/7
General data		
Ambient temperature (operation)		-20 °C ... 60 °C
Electromagnetic compatibility		Conformance with R&TTE directive 1999/5/EC
Dimensions	W / H / D	22.5 mm / 99 mm / 116 mm

Ordering data

Description	Type	Order No.	Pcs. / Pkt.
PSI Bluetooth converter, MCX connection for external antenna			
- Device with 2x diagnostic outputs	**PSI-WL-RS232-RS485/BT/2DO**	**2313805**	1
- Device with HazLoc approval	**PSI-WL-RS232-RS485/BT/HL**	**2313795**	1
PSI Bluetooth PROFIBUS-SET, supplied as standard: 2x PSI Bluetooth converters, 2x OMNI omnidirectional antennas			
PSI Bluetooth USB adapter, internal antenna			

Accessories

RS-232-D-SUB cable, length: 2 m - 9-pos. socket on 9-pos. socket	**PSM-KA9SUB9/BB/2METER**	**2799474**	1
Omnidirectional antenna	**RAD-ISM-2400-ANT-OMNI-2-1**	**2867461**	1
PANEL directional wireless antenna (without cable)	**RAD-ISM-2400-ANT-PAN- 8-0**	**2867610**	1
Antenna adapter cable	**RAD-PIG-EF316-MCX-SMA**	**2867678**	1
System power supply unit, primary-switched	**MINI-SYS-PS-100-240AC/24DC/1.5**	**2866983**	1
DIN rail connector	**ME 22,5 TBUS 1,5/ 5-ST-3,81 GN**	**2707437**	50

Bluetooth set
Pre-configured for PROFIBUS connections

Bluetooth USB adapter

Technical data	
10 V DC ... 30 V DC (via plug-in COMBICON screw terminal block)	-
19 V AC ... 29 V AC (via plug-in COMBICON screw terminal block)	-
24 V DC ±20% (as an alternative or redundant, via backplane bus contact and system current supply)	5 V DC (directly via the USB interface)
≤ 100 mA (24 V DC)	100 mA (5 V DC)
COMBICON screw terminal block	USB type A, plug
Preconfigured	Up to 2.1 Mbps
External 14 dBm	Internal 20 dBm
-91.00 dBm 2.402 GHz ... 2.48 GHz (ISM bandwidth) ≤ 150 m (14 dBm) -	-80.00 dBm 2.402 GHz ... 2.48 GHz (ISM bandwidth) 20 dBm (100 mW) = 80 m ... 150 m -
-20 °C ... 60 °C Conformance with R&TTE directive 1999/5/EC 22.5 mm / 99 mm / 116 mm	0 °C ... 70 °C Conformance with R&TTE directive 1999/5/EC 18 mm / 58 mm / 8 mm

Ordering data

Type	Order No.	Pcs. / Pkt.
PSI-WL-PROFIB/BT-SET/2DO	**2313876**	1

Ordering data

Type	Order No.	Pcs. / Pkt.
PSI-WL-PLUG-USB/BT	**2313083**	1

Accessories

MINI-SYS-PS-100-240AC/24DC/1.5	**2866983**	1
ME 22,5 TBUS 1,5/ 5-ST-3,81 GN	**2707437**	50

Accessories

Accessories
Omnidirectional antennas

– For mobile or point-to-multipoint applications with a small range
– Version with higher impact strength that is not immediately recognizable as an antenna

2 dBi gain

3 dBi gain, higher impact strength

		Technical data	Technical data
General data			
Ambient temperature range		-20 °C ... 65 °C	-40 °C ... 80 °C
Degree of protection		IP65	IP55
Impact strength		-	IK08
Gain		2 dBi	3 dBi
Impedance		50 Ω	50 Ω
Acceptance angle	vertical / horizontal	75 ° / 360 °	85 ° / 360 °
Dimensions W / H		7.8 / 82.5 mm	86 / 43 mm
Frequency range		2.4 GHz	2.4 GHz
Scope of supply		Incl. mounting material	-

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Omnidirectional antenna						
With connection MCX (male)	**RAD-ISM-2400-ANT-OMNI-2-1**	**2867461**	1	**RAD-ISM-2400-ANT-VAN- 3-1-MCX**	**2885702**	1
With connection RSMA (male)	**RAD-ISM-2400-ANT-OMNI-2-1-RSMA**	**2701362**	1	**RAD-ISM-2400-ANT-VAN-3-0-RSMA**	**2701358**	1
With SMA connection (male)				**RAD-ISM-2400-ANT-VAN- 3-0-SMA**	**2885867**	1
Mounting material for wall mounting				**RAD-ANT-VAN-MKT**	**2885870**	1

Omnidirectional Antennas

– For mobile applications with a longer range

6 dBi gain

Gain up to 6 dBi/8 dBi, Dual band

		Technical data	Technical data
General data			
Ambient temperature range		-40 °C ... 75 °C	-40 °C ... 80 °C
Degree of protection		IP55	IP68
Gain		6 dBi	6 dBi (2.4 GHz, when mounted on metal surface)
Impedance		50 Ω	50 Ω
Acceptance angle	vertical / horizontal	30 ° / 360 °	- / 360 °
Dimensions W / H		22 mm / 250 mm	92 mm / 51 mm
Frequency range		2.4 GHz	2.4 GHz
Scope of supply		Incl. mounting material	-

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Omnidirectional antenna						
With connection N (female)	**RAD-ISM-2400-ANT-OMNI-6-0**	**2885919**	1			
With connection N (female), salt water resistant	**RAD-2400-ANT-OMNI-6-0-SW**	**2903219**	1			
Dual band omnidirectional antenna with vandalism protection						
With adapter cable N (male) -> SMA (male)				**RAD-ISM-2459-ANT-FOOD-6-0**	**2692526**	1
With adapter cable N (male) -> MCX (male)				**RAD-ISM-2459-ANT-FOOD-6-0-MCX**	**2700674**	1

Accessories
Directional wireless antennas

– For large distances with line of sight

8 dBi gain

19 dBi gain

	Technical data		Technical data
General data	ANT-DIR-2459-01	RAD-...PAN-8-0	
Ambient temperature range	-40 °C ... 80 °C	-40 °C ... 75 °C	-40 °C ... 70 °C
Degree of protection	IP67	IP55	IP65
Gain	9 dBi	8 dBi	19 dBi
Impedance	50 Ω	50 Ω	50 Ω
Acceptance angle vertical / horizontal	55 ° (at 2.4 GHz) / 75 ° (at 2.4 GHz)	70 ° / 75 °	11 ° / 17 °
Dimensions W / H	80 / 101 mm	80 / 100 mm	610 / 419 mm
Frequency range	2.4 GHz	2.3 GHz	2.4 GHz
Scope of supply	Incl. mounting material	Incl. mounting material	Incl. mounting material

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
PANEL directional wireless antenna (without cable)						
With connection N (female)	**ANT-DIR-2459-01**	**2701186**	1			
With connection SMA (female)	**RAD-ISM-2400-ANT-PAN- 8-0**	**2867610**	1			
Parabolic antenna						
With connection N (female)				**RAD-ISM-2400-ANT-PAR-19-0**	**2867885**	1

Weather protection

Sealing tape

– Provides additional weather protection for adapters, splitters, cable connections, etc.
– Self-vulcanizing

	Technical data
General data	
Ambient temperature range	-40 °C ... 90 °C
Properties	Self-vulcanizing
Width	19 mm
Length	3 m
Thickness	0.75 mm

	Ordering data		
Description	Type	Order No.	Pcs. / Pkt.
Weather protection tape			
	RAD-TAPE-SV-19-3	**2903182**	1

Accessories

Antenna splitter
– For connecting two panel antennas for repeater applications

Surge protection
– For installing the antenna outside buildings from a cable length of 3 m

Antenna splitter, 2-way

Protection adapter for coaxial connections

		Technical data	Technical data
General data			
Ambient temperature range		-40 °C ... 85 °C	-40 °C ... 90 °C
Degree of protection		IP20	IP68
Attenuation per branch	(at 2400 MHz)	3 dB	Typ. 0.05 dB (≤ 0.15 dB)
Connection method		2x SMA (female), 1x SMA (male)	-
Frequency range		2.3 GHz ... 2.5 GHz	2.4 GHz ... 5.9 GHz
Scope of supply		2-way splitter, adapter from N (female) to SMA (female), 4 strips of self-vulcanizing weather protection tape	-

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Antenna splitter						
Double	**RAD-ISM-2400-SPL-2-SMA**	**2885595**	1			
COAXTRAB, protection adapter for antenna connections with Lambda/4 technology, 2.4 to 5.9 GHz						
N (female) -> N (female)				**CN-LAMBDA/4-5.9-BB**	**2838490**	1
N(male) -> N(female)				**CN-LAMBDA/4-5.9-SB**	**2800023**	1

Accessories

Adapter cable
– For adaptation of wireless module for antenna
– Attenuation:
Approximately 0.55 dB/m at 900 MHz
Approximately 0.80 dB/m at 2.4 GHz
Approximately 1.10 dB/m at 5 GHz

Adapter
– For installing the antenna inside buildings

Antenna adapter cable,
N (male) -> RSMA (male)

Adapter

	Technical data	Technical data
General data		
Ambient temperature range	-40 °C ... 85 °C	-65 °C ... 165 °C
Degree of protection	-	IP20
Impedance	50 Ω	50 Ω

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Antenna adapter cable						
0.5 m long	**RAD-PIG-RSMA/N-0.5**	**2903263**	1			
1 m long	**RAD-PIG-RSMA/N-1**	**2903264**	1			
2 m long	**RAD-PIG-RSMA/N-2**	**2903265**	1			
3 m long	**RAD-PIG-RSMA/N-3**	**2903266**	1			
Adapter						
N (female) -> N (female)				**RAD-ADP-N/F-N/F**	**2867843**	1
N (male) -> SMA (female)				**RAD-ADP-N/M-SMA/F**	**2917036**	1
RSMA (female) -> SMA (female)				**RAD-ADP-RSMA/F-SMA/F**	**2884538**	1
SMA (female) -> SMA (female)				**RAD-ADP-SMA/F-SMA/F**	**2884541**	1
SMA (female) -> SMA (female), perpendicular				**RAD-ADP-SMA/F-SMA/M-90**	**2917324**	1

Accessories
Adapter/extension cables

– Extension or adaptation of wireless module for antenna

Notes:

Keep the connection from the wireless module to the antenna as short as possible, as every cable leads to attenuation.

Antenna adapter cable

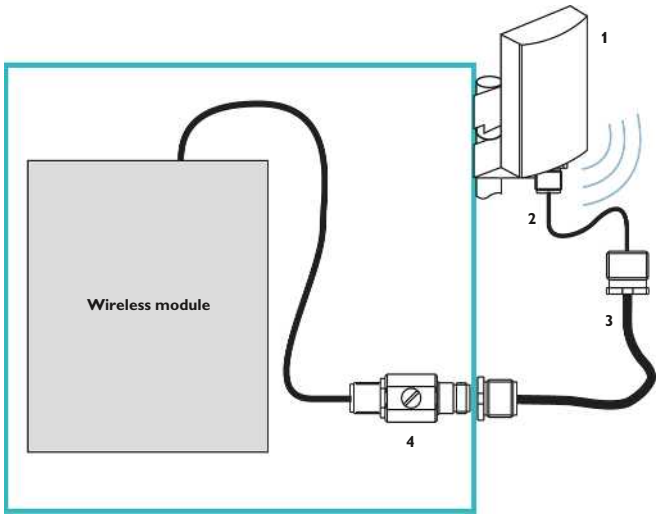
Antenna cable for longer connections

		Technical data	Technical data
General data			
Ambient temperature range		-40 °C ... 70 °C	-40 °C ... 105 °C
Attenuation / impedance	(at 2400 MHz)	approx. 1.5 dB/m / 50 Ω	approx. 0.27 dB/m for 900 MHz / 50 Ω

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Antenna adapter cable						
1 m long, MCX (male) -> SMA (male)	**RAD-PIG-EF316-MCX-SMA**	**2867678**	1			
50 cm long, MCX (male) -> N (male)	**RAD-PIG-EF316-MCX-N**	**2867681**	1			
30 cm long, N (female) -> SMA (male)	**RAD-PIG-EF316-N-SMA**	**2867694**	1			
50 m long, N (female) -> N (male)	**RAD-PIG-EF316-N-N**	**2867704**	1			
50 cm long, SMA (male) -> SMA (male)	**RAD-PIG-EF316-SMA-SMA**	**2885618**	1			
Antenna extension cable						
3 m long, N connection at both ends (male)				**RAD-CAB-EF393- 3M**	**2867649**	1
5 m long, N connection at both ends (male)				**RAD-CAB-EF393- 5M**	**2867652**	1
10 m long, N connection at both ends (male)				**RAD-CAB-EF393-10M**	**2867665**	1
15 m long, N connection at both ends (male)				**RAD-CAB-EF393-15M**	**2885634**	1
3 m long, SMA connection at both ends (male)				**RAD-CAB-EF142-3M**	**2884512**	1
5 m long, SMA connection at both ends (male)				**RAD-CAB-EF142-5M**	**2884525**	1

Control cabinet/switch box

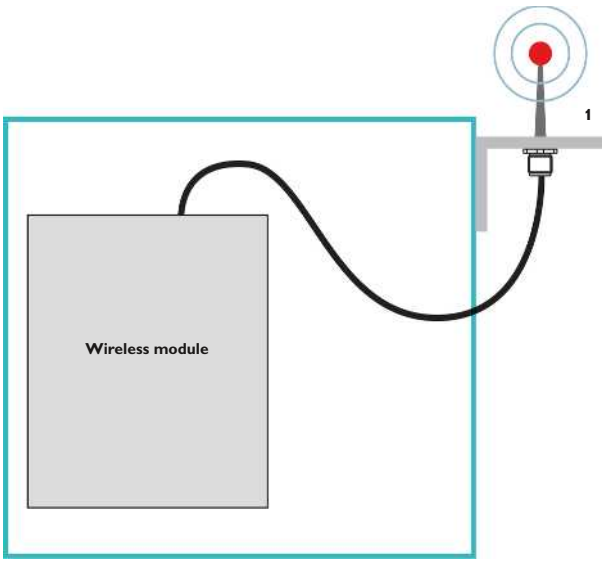
– For antennas with extension cable, with surge protection



1 Antenna
2 Antenna adapter cable (pigtail)
3 Antenna extension cable
4 Surge protection

Control cabinet/switch box

– For antennas without extension cable, without surge protection



RAD-Line IO - UD wireless system with Trusted Wireless

The **RAD-ISM-900-SET...UD...** uni-directional wireless radio system consists of

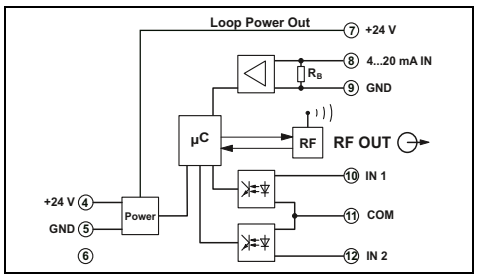
– Two transceivers preconfigured to communicate to one another
– Two omnidirectional antennas
– Operates in the license-free 902-928 MHz ISM band
– Frequency-hopping spread spectrum technology
– Transmitter can be DIN rail mounted ME housing or IP65 conduit style
– Conduit-style transmitters can be either 24 V DC or 120/240 V AC powered
– Receiver is DIN rail mounted ME housing, 24 V DC powered

– Integrated I/O allows connection directly to analog and digital inputs/outputs

Notes:

The products are offered exclusively for export outside the European Economic Area (EEA).

Set consisting of transmitter, receiver and two antennas with connecting cables



Technical data

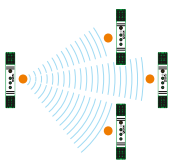
Wireless path		America	Australia	New Zealand
Direction		Uni-directional	Uni-directional	Uni-directional
Frequency range		902 ... 928	915.1 ... 927.8	921.4 ... 927.7 [MHz]
Transmission power		1 W	1 W	1 W
Number of channels		4 x 63	2 x 63	1 x 63
Analog input				
Number of inputs / signal range		1 x 4 mA ... 20 mA		
Input resistance		< 150 Ω		
Digital input				
Number of inputs / signal range		2 x 5 V AC/DC ... 30 V AC/DC		
Switching level	1 signal ("H")	min. 5 V DC		
	0 signal ("L")	max. 1.5 V DC		
Analog output				
Number of outputs / Signal range		1 x 4 mA ... 20 mA		
Load R_B		700 Ω (at U_B = 24 V, R_B = [U_B-10 V] / 20 mA)		
Digital output		3 floating PDT contacts		
Switching voltage		30 V DC / 120 V AC		
Switching current		0.5 A		
General data		Transmitter (TX)		Receiver (RX)
Supply voltage		12 V DC ... 30 V DC		12 V DC ... 30 V DC
Current consumption	Typ./max.	75 mA / 350 mA		85 mA / 125 mA
Degree of protection		-		-
Ambient temperature range		-40 °C ... 70 °C		-40 °C ... 70 °C
Housing material		Polyamide PA non-reinforced		Polyamide PA non-reinforced
Dimensions W / H / D		17.5 / 99 / 114.5 mm		17.5 / 99 / 114.5 mm
Conformance / approvals				
Conformance		FCC Directive, Part 15.247 ISC Directive RSS 210		
UL, USA / Canada		Class I, Div. 2, Groups A, B, C, D		

Ordering data

Description		Type	Order No.	Pcs. / Pkt.
Wireless set (transmitter, receiver, including antennas)	America	**RAD-ISM-900-SET-UD-ANT**	**2867102**	1
Receiver (individual)		**RAD-ISM-900-RX**	**2867047**	1
Wireless set (transmitter, receiver, including antennas)	Australia	**RAD-ISM-900-SET-UD-ANT-AU**	**2867416**	1
Receiver (individual)		**RAD-ISM-900-RX-AU**	**2867445**	1
Wireless set (transmitter, receiver, including antennas)	New Zealand	**RAD-ISM-900-SET-UD-ANT-NZ**	**2885029**	1
Receiver (individual)		**RAD-ISM-900-RX-NZ**	**2885058**	1

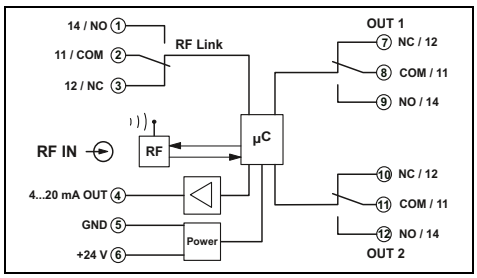
Point-to-point

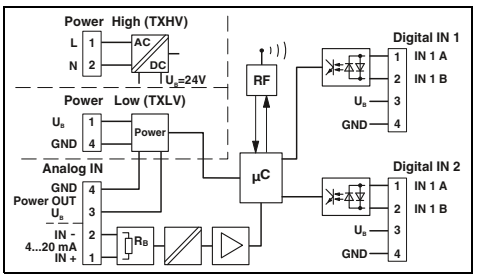
Point-to-multipoint



Set, consisting of transmitter for the mains connection (IP65) and receiver (IP20) including antennas

Set, consisting of transmitter for the low-voltage range (IP65) and receiver (IP20) including antennas





Technical data

America	Australia	New Zealand	
Uni-directional	Uni-directional	Uni-directional	
902 ... 928	915.1 ... 927.8	921.4 ... 927.7	[MHz]
1 W	1 W	1 W	
4 x 63	2 x 63	1 x 63	
1 x 4 mA ... 20 mA			
< 170 Ω			
2 x 85 V AC ... 240 V AC			
-			
-			
1 x 4 mA ... 20 mA			
700 Ω (at U_B = 24 V, R_B = [U_B-10 V] / 20 mA)			
3 floating PDT contacts			
30 V DC / 120 V AC			
0.5 A			
Transmitter (TX)		Receiver (RX)	
100 V AC ... 240 V AC		12 V DC ... 30 V DC	
57 mA / 109 mA		85 mA / 125 mA	
-		-	
-40 °C ... 70 °C		-40 °C ... 70 °C	
5052H32AL PBT		Polyamide PA non-reinforced	
57 / 57 / 280 mm		17.5 / 99 / 114.5 mm	
FCC Directive, Part 15.247			
ISC Directive RSS 210			
Class I, Div. 2, Groups A, B, C, D			

Ordering data

Type	Order No.	Pcs. / Pkt.
RAD-ISM-900-SET-AC-UD	**2867021**	1
RAD-ISM-900-SET-AC-UD-AU	**2867429**	1
RAD-ISM-900-SET-AC-UD-NZ	**2885032**	1

Technical data

America	Australia	New Zealand	
Uni-directional	Uni-directional	Uni-directional	
902 ... 928	915.1 ... 927.8	921.4 ... 927.7	[MHz]
1 W	1 W	1 W	
4 x 63	2 x 63	1 x 63	
1 x 4 mA ... 20 mA			
< 170 Ω			
2 x 5 V AC/DC ... 30 V AC/DC			
min. 5 V DC			
max. 1.5 V DC			
1 x 4 mA ... 20 mA			
700 Ω (at U_B = 24 V, R_B = [U_B-10 V] / 20 mA)			
3 floating PDT contacts			
30 V DC / 120 V AC			
0.5 A			
Transmitter (TX)		Receiver (RX)	
9 V DC ... 30 V DC		12 V DC ... 30 V DC	
75 mA / 350 mA		85 mA / 125 mA	
-		-	
-40 °C ... 70 °C		-40 °C ... 70 °C	
5052H32AL PBT		Polyamide PA non-reinforced	
57 / 57 / 280 mm		17.5 / 99 / 114.5 mm	
FCC Directive, Part 15.247			
ISC Directive RSS 210			
Class I, Div. 2, Groups A, B, C, D			

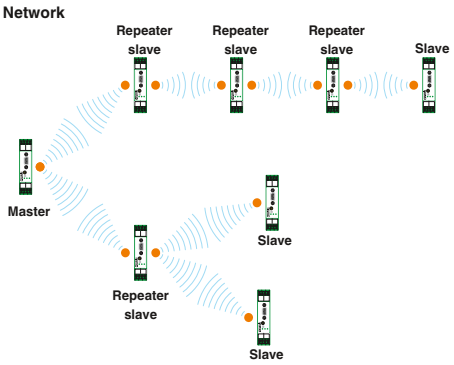
Ordering data

Type	Order No.	Pcs. / Pkt.
RAD-ISM-900-SET-DC-UD	**2867034**	1
RAD-ISM-900-SET-DC-UD-AU	**2867432**	1
RAD-ISM-900-SET-DC-UD-NZ	**2885045**	1

RAD-Line Serial IO - BD wireless system for transmission of serial data and I/O signals

The **RAD-ISM-900-DATA-BD-BUS...** bi-directional wireless radio allows wireless connection of several decentralized controllers and the reception and output of I/O signals from the field to a central location (controller).

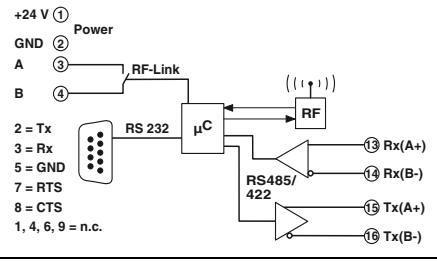
- Operates in the license-free 902-928 MHz ISM band
- Frequency-hopping spread spectrum technology
- Provides an interface for transfer of I/O data between 900 MHz wireless and RS-232, RS-422, and RS-485 interfaces
- Programmable for point-to-point, point-to-multipoint and multipoint-to-point configurations
- Integrated bus foot allows connection to additional I/O modules
- Individual modules can be configured as master, slave or repeater
- Up to 254 slaves may operate from a single master



Wireless transceiver for serial interfaces (RS-232, RS-422/RS-485)

Ex: cULus

Housing width 22.5 mm



Notes:

The basic software for the configuration and diagnostics of two network devices can be downloaded free of charge at www.phoenixcontact.com. A software license is required to perform the diagnostic functions for multiple network devices.

The products are offered exclusively for export outside the European Economic Area (EEA).

Technical data

Wireless path	America	Australia	New Zealand	
Direction	Bi-directional	Bi-directional	Bi-directional	
Frequency range	902 ... 928	915.1 ... 927.8	921.4 ... 927.7	[MHz]
Transmission power	1 W	1 W	1 W	
Number of channels	4 x 63	2 x 63	1 x 63	
Serial port	RS-232		RS-485/RS-422	
Connection method	9-pos. D-SUB (socket)		COMBICON plug-in screw terminal block	
Serial transmission speed	1,2 / 2,4 / 9,6 / 19,2 / 38,4 kbps		1,2 / 2,4 / 9,6 / 19,2 / 38,4 kbps	
Data format/coding	Asynchronous			
Data flow control/protocols	RTS/CTS			
Analog input				
Number of inputs	-			
Signal range	-			
Input resistance	-			
Digital input				
Number of inputs	-			
Switching level	1 signal ("H")	-		
	0 signal ("L")	-		
Pulse input				
Switching level	1 signal ("H")	-		
	0 signal ("L")	-		
Pulse time	-			
Digital output				
Switching voltage	-			
Switching current	-			
General data				
Supply voltage	9 V DC ... 30 V DC			
Current consumption	typ. / max.	110 mA / 180 mA		
Degree of protection	IP20			
Ambient temperature range	-40 °C ... 70 °C			
Housing material	Polyamide PA non-reinforced			
Dimensions W / H / D	22.5 / 99 / 114.5 mm			
Screw connection solid/stranded/AWG	0.2 ... 4 mm² / 0.2 ... 2.5 mm² / 24 - 12			
Conformance / approvals				
Conformance	FCC Directive, Part 15.247 ISC Directive RSS 210			
UL, USA / Canada	Class I, Div. 2, Groups A, B, C, D			

Ordering data

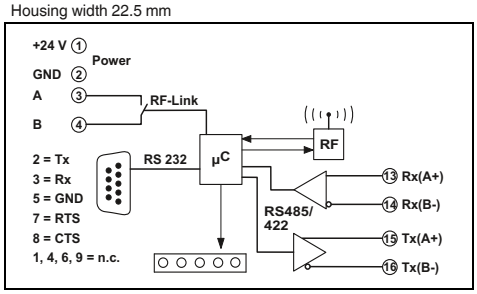
Description		Type	Order No.	Pcs. / Pkt.
Wireless module with serial interface	America	**RAD-ISM-900-DATA-BD**	**2867131**	1
Wireless module with serial interface	Australia	**RAD-ISM-900-DATA-BD-AU**	**2867953**	1
Wireless module with serial interface	New Zealand	**RAD-ISM-900-DATA-BD-NZ**	**2885155**	1

Wireless transceiver for serial interfaces (RS-232, RS-422/RS-485), can be extended

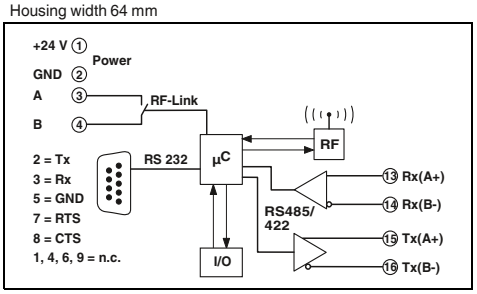
Wireless transceiver for serial interfaces (RS-232, RS-422/RS-485), with integrated inputs/outputs

Ex:

Housing width 22.5 mm



Housing width 64 mm



Technical data

America	Australia	New Zealand
Bi-directional	Bi-directional	Bi-directional
902 ... 928	915.1 ... 927.8	921.4 ... 927.7 [MHz]
1 W	1 W	1 W
4 x 63	2 x 63	1 x 63
RS-232		RS-485/RS-422
9-pos. D-SUB (socket)		COMBICON plug-in screw terminal block
1,2 / 2,4 / 9,6 / 19,2 / 38,4 kbps		1,2 / 2,4 / 9,6 / 19,2 / 38,4 kbps
Asynchronous		
RTS/CTS		
-		
-		
-		
-		
-		
-		
-		
-		
-		
-		
-		
9 V DC ... 30 V DC		
110 mA / 180 mA		
IP20		
-40 °C ... 70 °C		
Polyamide PA non-reinforced		
22.5 / 99 / 114.5 mm		
0.2 ... 4 mm² / 0.2 ... 2.5 mm² / 24 - 12		
FCC Directive, Part 15.247		
ISC Directive RSS 210		
Class I, Div. 2, Groups A, B, C, D		

Technical data

Bi-directional	
902 MHz ... 928 MHz	
1 W	
4 x 63	
RS-232	RS-485/RS-422
9-pos. D-SUB (socket)	COMBICON plug-in screw terminal block
1,2 / 2,4 / 9,6 / 19,2 / 38,4 kbps	1,2 / 2,4 / 9,6 / 19,2 / 38,4 kbps
Asynchronous	
RTS/CTS	
8	
0 V ... 5 V	
10 kΩ	
8	
≥ 2.6 V DC	
≤ 2.4 V DC	
≥ 2.6 V DC	
≤ 2.4 V DC	
5 ms (minimum)	
Digital outputs	
40 V DC	
500 mA (sinking)	
12 V DC ... 30 V DC	
- / 4.1 A	
IP20	
-40 °C ... 70 °C	
Polyamide PA non-reinforced with aluminum heatsink	
64 / 99 / 114.5 mm	
0.2 ... 4 mm² / 0.2 ... 2.5 mm² / 24 - 14	
FCC Directive, Part 15.247	
-	

Ordering data

Type	Order No.	Pcs. / Pkt.
RAD-ISM-900-DATA-BD-BUS	**2867296**	1
RAD-ISM-900-DATA-BD-BUS-AU	**2867996**	1
RAD-ISM-900-DATA-BD-BUS-NZ	**2885168**	1

Ordering data

Type	Order No.	Pcs. / Pkt.
RAD-ISM-900-DATA-BD-PLUS	**2902277**	1

RAD-Line Ethernet with Trusted Wireless

The **RAD-ISM-900-EN-BD...** industrial wireless radio allows a wireless connection of several decentralized controllers to a central location (controller) via an Ethernet or serial connection.

- Operates in the license-free 902-928 MHz ISM band
- Frequency-hopping spread spectrum technology
- Provides an interface for transfer of data between 900 MHz wireless and Ethernet, RS-232, RS-422 or RS-485 interfaces
- Contains an adjustable 10 mW... 1 W transmitter
- Supports TCP/IP, UDP and IP v4 protocols
- Programmable for point-to-point, point-to-multipoint and multipoint-to-point configurations
- Incorporates security using selectable 128/192/256-bit AES encryption
- **RAD-ISM-900-EN-BD-BUS** features an integrated bus foot to connect I/O modules (addressable via Modbus)
- Individual modules can be configured as master, slave or repeater using integrated web browser interface
- **RAD-ISM-900-EN-BD/B** is a dedicated slave radio with no Ethernet ports

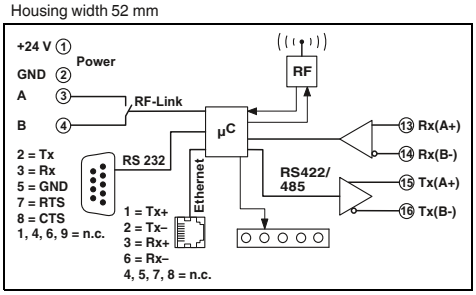
Notes:

The products are offered exclusively for export outside the European Economic Area (EEA).

Wireless transceiver for Ethernet and serial interfaces V.24 (RS-232, RS-422/RS-485)

Ex: c UL us

Housing width 52 mm



Technical data

Wireless path		
Direction	Bi-directional	
Frequency range	902 MHz ... 928 MHz	
Transmission power	10 ... 30 dBm	
Serial port	RS-232	RS-485
Connection method	9-pos. D-SUB (socket)	COMBICON plug-in screw terminal block
Serial transmission speed	300 ... 57,6 kbps	
Data format/coding	Asynchronous	
Data flow control/protocols	RTS/CTS	
General data		
Supply voltage	11 V DC ... 30 V DC	
Current consumption	250 mA (at 24 V DC)	
Degree of protection	IP20	
Ambient temperature range	-40 °C ... 65 °C	
Housing material	Polyamide PA non-reinforced with aluminum heatsink	
Dimensions W / H / D	52 / 99 / 115 mm	
Screw connection solid/stranded/AWG	0.2 ... 4 mm² / 0.2 ... 2.5 mm² / 24 - 14	
Conformance / approvals		
Conformance	FCC Directive, Part 15.247 ISC Directive RSS 210	
UL, USA / Canada	Class I, Div. 2, Groups A, B, C, D	

Ordering data

Description	Type	Order No.	Pcs. / Pkt.
Wireless module with optional Ethernet and serial interfaces			
Bus foot for I/O extension modules	**RAD-ISM-900-EN-BD-BUS**	**2900017**	1
Cannot be extended	**RAD-ISM-900-EN-BD**	**2900016**	1
Wthout serial ports	**RAD-ISM-900-EN-BD/B**	**2901205**	1

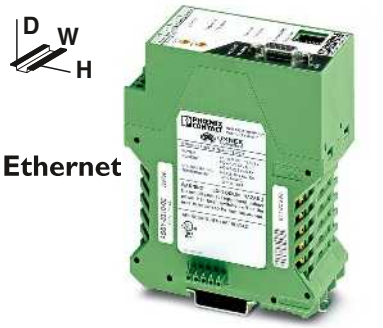
RAD-Line Ethernet with 400 mW WLAN

High-power Ethernet industrial wireless radio transceivers that conform to IEEE standard 802.11b/g.

- Operates in the license-free 2.4 GHz ISM band
- Features a 400 mW industrial radio transceiver
- Selectable 802.11i high security with 128/192/256-bit AES encryption and optional 802.1x authentication
- Supports TCP/IP, UDP, and IP v4 protocols
- Individual modules can be configured as point, bridge or client modes using integrated web browser interface
- Bridge mode allows for a network of up to 40 nodes on a single network resulting in a highly reliable network
- Provides an interface for transfer of data between legacy serial devices (RS-232, RS-422, RS-485 interfaces) onto an Ethernet network
- Programmable for point-to-point, point-to-multipoint and multipoint-to-point configurations
- Optional integrated bus foot for connection to RAD-Line extension modules
- Can be used as a Modbus RTU/TCP gateway

Notes:

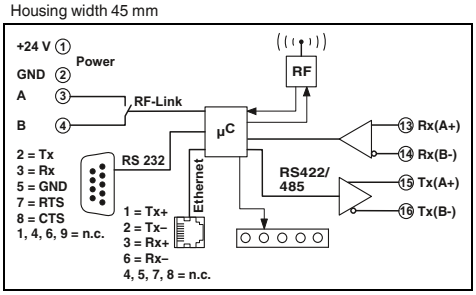
The products are offered exclusively for export outside the European Economic Area (EEA).



WLAN wireless transceiver for Ethernet and serial interfaces (RS-232, RS-422/RS-485), can be extended with I/O extension modules

Ex: cULus

Housing width 45 mm



Technical data

Wireless path			
Direction		Bi-directional	
Frequency range		2.4032 GHz ... 2.4799 GHz	
Transmission power		400 mW	
Serial port		RS-232	RS-485/RS-422
Connection method		9-pos. D-SUB (socket)	COMBICON plug-in screw terminal block
Serial transmission speed		300 ... 57,6 kbps	300 ... 57,6 kbps
Data format/coding		Asynchronous	
Data flow control/protocols		RTS/CTS	
General data			
Supply voltage		12 V DC ... 30 V DC	
Current consumption	typ. / max.	230 mA / 280 mA	
Degree of protection		IP20	
Ambient temperature range		-40 °C ... 60 °C	
Housing material		Polyamide PA non-reinforced	
Dimensions W / H / D		45 / 99 / 115 mm	
Screw connection solid/stranded/AWG		0.2 ... 4 mm² / 0.2 ... 2.5 mm² / 24 - 14	
Conformance / approvals			
Conformance		FCC Directive, Part 15.247 ISC Directive RSS 210	
UL, USA / Canada		Class I, Div. 2, Groups A, B, C, D	

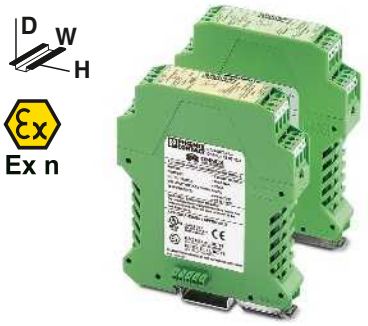
Ordering data

Description	Type	Order No.	Pcs. / Pkt.
WLAN wireless module, high power transceiver with Ethernet and serial interface Bus foot for I/O extension modules	**RAD-80211-XD/HP-BUS**	**2900047**	1
Cannot be extended	**RAD-80211-XD/HP**	**2900046**	1

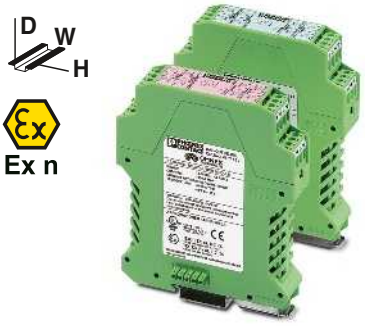
Extension modules

RAD-Line extension modules provide additional inputs and outputs for bi-directional RAD-Line IO and RAD-Line serial wireless systems.

– Easily installed via an integrated bus foot
– Bus provides power supply voltage
– Data transferred to transceiver module via bus
– Up to 8 modules can be connected to a single transceiver
– A maximum of 33 analog or 66 digital signals can be configured, depending on the selection of modules

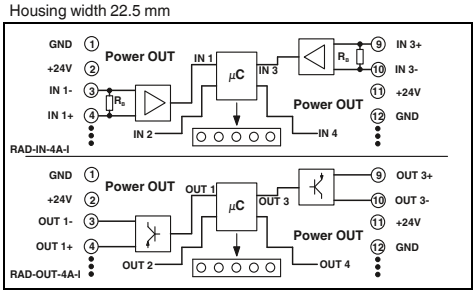


Analog components for 4 inputs or 4 outputs

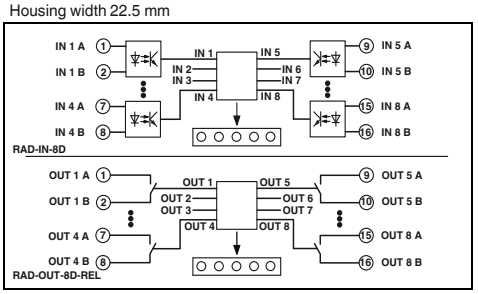


Digital components for 8 inputs or 8 outputs

Ex:
Housing width 22.5 mm



Ex:
Housing width 22.5 mm



Technical data

		RAD-IN-4A-I	RAD-OUT-4A-I
Analog input			
Number of inputs		4	-
Signal range		4 mA ... 20 mA	-
Input resistance		< 170 Ω	-
Digital input			
Number of inputs		-	-
Signal range		-	-
Switching level	1 signal (“H”)	-	-
	0 signal (“L”)	-	-
Input frequency			
Pulse length		-	-
Analog output			
Number of outputs		-	4
Signal range		-	-
Load R_B		-	700 Ω (at U_B = 24 V, R_B = [U_B-10 V] / 20 mA)
Digital output			
Contact type		-	-
Switching voltage		-	-
Switching current		-	-
Clock frequency		-	-
Frequency output		-	-
General data			
Supply voltage		9 V DC ... 30 V DC (via bus foot)	9 V DC ... 30 V DC (via bus foot)
Current consumption	Typ./max.	100 mA / 130 mA	100 mA / 130 mA
Degree of protection		IP20	IP20
Ambient temperature range		-20 °C ... 65 °C	-20 °C ... 65 °C
Housing material		Polyamide PA non-reinforced	Polyamide PA non-reinforced
Dimensions W / H / D		22.5 / 99 / 114.5 mm	22.5 / 99 / 114.5 mm
Conformance / approvals			
Conformance		CE-compliant	
ATEX		Ex II 3 G EEx nL IIC	
IECEx		Ex nL IIC	
UL, USA / Canada		Class I, Div. 2, Groups A, B, C, D	

Technical data

		RAD-IN-8D	RAD-OUT-8D-REL
Analog input			
Number of inputs		-	-
Signal range		-	-
Input resistance		-	-
Digital input			
Number of inputs		8	-
Signal range		5 V AC/DC ... 30 V AC/DC	-
Switching level	1 signal (“H”)	min. 5 V DC	-
	0 signal (“L”)	max. 1.5 V DC	-
Input frequency		max. 1 Hz	
Pulse length		-	-
Analog output			
Number of outputs		-	-
Signal range		-	-
Load R_B		-	-
Digital output			
Contact type		-	8 x relay output
Switching voltage		-	30 V AC/DC (EC Declaration of Conformity) 30 V DC (with UL approval) 250 V AC (with UL approval)
Switching current		-	0.5 A (EC Declaration of Conformity) 2 A (with UL approval)
Clock frequency		-	-
Frequency output		-	-
General data			
Supply voltage		9 V DC ... 30 V DC (via bus foot)	9 V DC ... 30 V DC (via bus foot)
Current consumption	Typ./max.	25 mA / 30 mA	100 mA / 160 mA
Degree of protection		IP20	IP20
Ambient temperature range		-20 °C ... 65 °C	-20 °C ... 65 °C
Housing material		Polyamide PA non-reinforced	Polyamide PA non-reinforced
Dimensions W / H / D			
Conformance / approvals			
Conformance		CE-compliant	
ATEX		Ex II 3 G EEx nL IIC	
IECEx		Ex nL IIC	
UL, USA / Canada		Class I, Div. 2, Groups A, B, C, D	

Ordering data

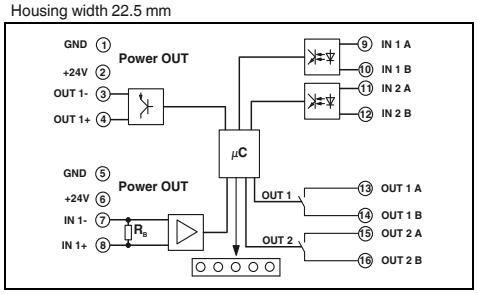
Description		Type	Order No.	Pcs. / Pkt.
Extension module	Analog IN	**RAD-IN-4A-I**	**2867115**	1
Extension module	Analog OUT	**RAD-OUT-4A-I**	**2867128**	1
Extension module	Digital IN			
Extension module	Digital OUT			
Extension module	Mixed I/O			

Ordering data

Type	Order No.	Pcs. / Pkt.
RAD-IN-8D	**2867144**	1
RAD-OUT-8D-REL	**2867157**	1

Analog/digital module for 2 digital inputs/outputs and 1 analog input/output

Ex: Ex, cULus, GOST
Housing width 22.5 mm

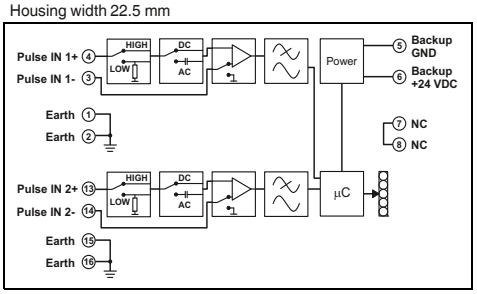


Technical data	
1	
4 mA ... 20 mA	
< 170 Ω	
2	
5 V AC/DC ... 30 V AC/DC	
min. 5 V DC	
max. 1.5 V DC	
-	
1	
4 mA ... 20 mA	
700 Ω (at U_B = 24 V, R_B = [U_B-10 V] / 20 mA)	
2 x relay output	
30 V AC/DC (EC Declaration of Conformity)	
30 V DC (with UL approval)	
250 V AC (with UL approval)	
0.5 A (EC Declaration of Conformity)	
2 A (with UL approval)	
-	
-	
9 V DC ... 30 V DC (via bus foot)	
70 mA / 110 mA	
IP20	
-20 °C ... 65 °C	
Polyamide PA non-reinforced	
CE-compliant	
Ex II 3 G EEx nL IIC	
Ex nL IIC T5	
Class I, Div. 2, Groups A, B, C, D	

Ordering data		
Type	**Order No.**	Pcs. / Pkt.
RAD-IN+OUT-2D-1A-I	**2867322**	1

Digital module for two counter/frequency inputs

Ex: cULus
Housing width 22.5 mm



Technical data	
-	
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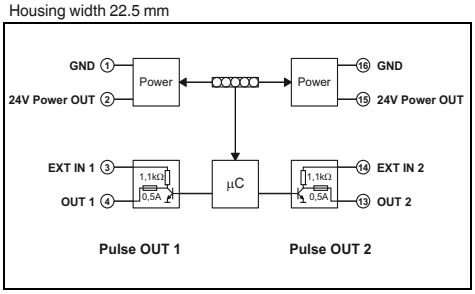
2	
0.1 V AC/DC ... 30 V AC/DC	
(Common mode 3.6 V DC) / (differential mode 100 mV_{PP})	
-	
(0.1 Hz ... 10 kHz (50% Duty Cycle))	
(High time 50 µs)	
-	
-	
-	
-	
-	
-	
-	
9 V DC ... 30 V DC (via bus foot)	
35 mA / 45 mA	
IP20	
-20 °C ... 65 °C	
Polyamide PA non-reinforced	
CE-compliant	
Ex II 3 G EEx nL IIC	
-	
Class I, Div. 2, Groups A, B, C, D	

Ordering data		
Type	**Order No.**	Pcs. / Pkt.
RAD-IN-2D-CNT	**2885223**	1

Digital module for two counter/frequency outputs

Ex: cULus
Housing width 22.5 mm



Technical data	
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Transistor output, passive	
-	
Approx. 27 mA (Terminal 3/14)	
Approx. 25 mA (Terminal 4/13)	
(High Speed 10 kHz with 50% Duty Cycle)	
(Low speed 10 Hz with 50% duty cycle)	
(0.1 Hz ... 10 kHz (50% Duty Cycle))	
9 V DC ... 30 V DC (via bus foot)	
90 mA / 115 mA	
IP20	
-20 °C ... 65 °C	
Polyamide PA non-reinforced	
CE-compliant	
Ex II 3 G EEx nL IIC	
-	
Class I, Div. 2, Groups A, B, C, D	

Ordering data		
Type	**Order No.**	Pcs. / Pkt.
RAD-OUT-2D-CNT	**2885236**	1

Accessories
Omnidirectional antennas

– Mobile or stationary applications
– Point-to-multipoint configurations
– Small antennas are suitable for applications with a shorter range
– Large antennas are suitable for applications requiring longer range

2.15 dBi gain

7 dBi gain

		Technical data	Technical data
General data			
Ambient temperature range		-40 °C ... 75 °C	-40 °C ... 80 °C
Degree of protection		IP65	IP65
Gain		2.15 dBi	7 dBi
Impedance		50 Ω	50 Ω
Connection method		MCX (male)	N (female)
Acceptance angle	vertical / horizontal	(N/A) / 360 °	17 ° / 100 °
Dimensions W / H		3 / 89 mm	3 / 609 mm
Frequency range		900 MHz	900 MHz
Scope of supply		Incl. mounting material	Incl. mounting material

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Omnidirectional antenna						
	RAD-ISM-900-ANT-OMNI-0-6	**2867160**	1	**RAD-ISM-900-ANT-OMNI-5**	**2867199**	1

Accessories
Omnidirectional antennas

– Mobile or stationary applications
– Point-to-multipoint configurations
– Small antennas are suitable for applications with a shorter range
– Large antennas are suitable for applications requiring longer range

5 dBi gain

8 dBi gain

		Technical data	Technical data
General data			
Ambient temperature range		-40 °C ... 80 °C	-40 °C ... 80 °C
Degree of protection		IP65	IP65
Gain		5.15 dBi	8 dBi
Impedance		50 Ω	50 Ω
Connection method		N (female)	N (female)
Acceptance angle	vertical / horizontal	28 ° / 360 °	15 ° / 360 °
Dimensions W / H		60.452 / 1123.95 mm	60.5 / 1803.4 mm
Frequency range		902 MHz	900 MHz
Scope of supply		Incl. mounting material	Incl. mounting material

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Omnidirectional antenna						
	RAD-ISM-900-ANT-OMNI-FG-3-N	**2867791**	1	**RAD-ISM-900-ANT-OMNI-FG-6-N**	**2885579**	1

Accessories
Directional (YAGI) antennas

– Stationary applications
– Point-to-point configurations for line of sight
– Longer ranges than omnidirectional antennas

5 dBi gain, with 0.6 m connecting cable

8.5 dBi gain, with 0.6 m connecting cable

		Technical data	Technical data
General data			
Ambient temperature range		-40 °C ... 80 °C	-40 °C ... 80 °C
Degree of protection		IP65	IP65
Gain		5 dBi	8.5 dBi
Impedance		50 Ω	50 Ω
Connection method		N (female) with cable (0.6 m)	N (female) with cable (0.6 m)
Acceptance angle	vertical / horizontal	78 ° / 168 °	62 ° / 100 °
Dimensions W / H		60 / 170 mm	60 / 170 mm
Frequency range		900 MHz	900 MHz
Scope of supply		Incl. mounting material	Incl. mounting material

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Directional antenna						
	RAD-ISM-900-ANT-YAGI-3-N	**2867801**	1	**RAD-ISM-900-ANT-YAGI-6.5-N**	**2867814**	1

Accessories
Surge protection

– For externally mounted installations
– Installed between antenna and radio for surge protection
– Replaceable, gas-filled arrestor

With N connector, grounded shield

		Technical data
General data		
Ambient temperature range		-40 °C ... 80 °C
Degree of protection		IP55
Attenuation	(at 900 MHz)	Typ. 0.2 dB (≤ 2.2 GHz)
Impedance		50 Ω

	Ordering data		
Description	Type	Order No.	Pcs. / Pkt.
COAXTRAB, attachment plug with surge protection for coaxial cables			
N connector, plug-socket	**CN-UB-280DC-SB**	**2818148**	1
N connector socket/socket	**CN-UB-280DC-BB**	**2818850**	1

Antenna splitter

– Allows multiple radios in an enclosure to share an antenna

Technical data

General data		
Ambient temperature range		-40 °C ... 85 °C
Degree of protection		IP20
Attenuation per branch	(at 900 MHz)	3 dB
Impedance		50 Ω
Connection method		Type MCX (female)

Ordering data

Description	Type	Order No.	Pcs. / Pkt.
Antenna splitter	**RAD-ISM-900-ANT-4**	**2867050**	1

Accessories
Adapter cable

– Various cables for connection of different antennas

Technical data

General data		
Ambient temperature range		-40 °C ... 75 °C
Attenuation	(at 900 MHz)	0.89 dB/m
Impedance		50 Ω
Conformance / approvals		
UL, USA / Canada		-

Technical data

General data	
Ambient temperature range	-40 °C ... 85 °C
Attenuation	approx. 1.5 dB/m
Impedance	50 Ω
Conformance / approvals	
UL, USA / Canada	Class I, Div. 1, 2, Groups A, B, C, D Class II, Div. 1, 2, Groups F, G

Ordering data

Description	Type	Order No.	Pcs. / Pkt.
Antenna adapter cable			
1.2 m long, MCX (male) -> N (female)	**RAD-CON-MCX-N-SB**	**2867717**	1
1.2 m long, 90° MCX (male) -> N (female)	**RAD-CON-MCX90-N-SS**	**2885207**	1
1.2 m long, SMA (male) -> N (female)	**RAD-CON-SMA-N-SS**	**2867403**	1
30 cm long, MCX (male) -> MCX (male)	**RAD-CON-MCX-MCX-SS**	**2867607**	1
Antenna adapter cable for Ex-zone 1			
90 cm long, MCX (male) -> RPSMA (male)	**RAD-CON-MCX-RPSMA-EX**	**2885621**	1

Accessories
Adapter cable

– Various cables for connection of different antennas

Antenna adapter cable, N (male) -> RSMA (male)

Technical data

General data		
Ambient temperature range		-40 °C ... 85 °C
Attenuation	(at 900 MHz)	0.37 dB @ 915 MHz
Impedance		50 Ω

Ordering data

Description	Type	Order No.	Pcs. / Pkt.
Antenna adapter cable			
0.5 m long	**RAD-PIG-RSMA/N-0.5**	**2903263**	1
1 m long	**RAD-PIG-RSMA/N-1**	**2903264**	1
2 m long	**RAD-PIG-RSMA/N-2**	**2903265**	1
3 m long	**RAD-PIG-RSMA/N-3**	**2903266**	1

Extension cable

– Various cables to extend distance between the radio and antenna
– Distance should remain as short as possible for reduced attenuation

Technical data

General data	
Ambient temperature range	-40 °C ... 75 °C
Impedance	50 Ω

Ordering data

Description	Type	Order No.	Pcs. / Pkt.
Antenna extension cable, N connection at both ends (male)			
3 m long, attenuation (at 900 MHz) 0.5 dB/m	**RAD-CAB-RG58-10**	**2867364**	1
6 m long, attenuation (at 900 MHz) 0.5 dB/m	**RAD-CAB-RG58-20**	**2867212**	1
7 m long, attenuation (at 900 MHz) 0.25 dB/m	**RAD-CAB-RG213-25**	**2867597**	1
12 m long, attenuation (at 900 MHz) 0.25 dB/m	**RAD-CAB-RG213-40**	**2867377**	1
15 m long, attenuation (at 900 MHz) 0.25 dB/m	**RAD-CAB-RG213-50**	**2867225**	1
18 m long, attenuation (at 900 MHz) 0.13 dB/m	**RAD-CAB-LMR400-60**	**2867380**	1
24 m long, attenuation (at 900 MHz) 0.13 dB/m	**RAD-CAB-LMR400-80**	**2867393**	1
30 m long, attenuation (at 900 MHz) 0.13 dB/m	**RAD-CAB-LMR400-100**	**2867238**	1
45 m long, attenuation (at 900 MHz) 0.08 dB/m	**RAD-CAB-LMR600-150**	**2885184**	1
60 m long, attenuation (at 900 MHz) 0.06 dB/m	**RAD-CAB-LMR900-200**	**2885197**	1